

Atty Dkt. No.: 10010381-1
USSN: 09/944,083

REMARKS

In view of the following remarks, the Examiner is respectfully requested to withdraw the rejections and allow 7-26 and 44-51, the only claims pending and currently under examination in this application.

Claims 7-26 and 44-51 have been rejected under 35 U.S.C. § 112, first paragraph as purportedly containing subject matter not sufficiently described in the specification to demonstrate that the inventors were in possession of the invention as claimed when the application was filed.

Specifically, the Examiner has raised issue with the claim language of Claims 7 and 16 which reads: "contacting said surface with a derivatizing composition comprising at least a first silane having an olefin functional group..." and has asserted that this language is supported by the specification as filed.

However, as filed the specification at page 9, paragraph 41, states:

The derivatizing composition **contains at least one type of silane**, where the silane includes an olefinic functional group, as described in greater detail below. In many embodiments, the derivatizing composition may include two types of silanes, a first silane that may be represented as $R^1-Si(R^L R^X R^Y)$ and a second silane having the formula $R^2-(L)_n-Si(R^L R^X R^Y)$. [emphasis added]

As such, the specification clearly teaches that the derivatizing composition includes at least one silane and may include at two silanes. Therefore, the cited claim language is fully supported in the specification as filed, evidencing that the inventors were in possession of the invention as claimed when the application was filed.

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The Examiner has raised issue with the claim language of 51 for similar reasons, asserted that there is no support in the specification as filed for derivitizing with a composition that includes at least one silane. However, as pointed out above, the specification clearly teaches that the derivatizing composition includes at least one silane and may include at two silanes. Therefore, the cited claim language is fully supported in the specification as filed, evidencing that the inventors were in possession of the invention as claimed when the application was filed.

Therefore, the rejection of Claims 7-26 and 44-51 under 35 U.S.C. § 112, first paragraph may be withdrawn.

Claims 7-26 and 44-51 have been rejected under 35 U.S.C. § 103(a) as being obvious Wang in view of Bensimon, for the asserted reason that one of skill in the art would be motivated to modify the general array fabrication teaching of Wang to use the specific olefin group displaying surface of Bensimon and therefore arrive at the claimed invention.

However, a feature of the pending claims is the step of "**converting said olefin functional groups to ligand reactive functional groups** that produce covalent bonds with said at least two different polymer ligands upon contact with said ligands..." As such, the claimed methods include a step of converting the olefin functional groups to ligand reactive functional groups.

The combined teaching of Wang in view of Bensimon specifically teaches away from such a step.

Specifically, at Col. 3, lines 40 to 50, Bensimon states that:

These highly specific surfaces for biological reactions, contain a support having at the surface groups with a double bond, especially vinyl ($\text{CH}=\text{CH}_2$, hereinafter $\text{C}=\text{C}$ surfaces) which are accessible to the solution. They are capable of directly anchoring molecules of biological interest (DNA, RNA, PNA, proteins, lipids, saccharides) under certain conditions of pH or ionic content of the medium. In particular, these surfaces do not

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require specific chemical modification either of the surface or of the biological molecules to be anchored. There are no documents mentioning such a use of a surface with vinyl groups.

Accordingly, Bensimon teaches a method in which the olefin functional groups on the surface are reacted directly with the ligands to be attached to the surface, without any intermediate conversion step. Furthermore, as this direct linkage ability without an intermediate conversion step is the benefit of using Bensimon's method of using olefin displaying functional groups, Bensimon provides no motivation to one of skill in the art to complicate the method by first changing the olefin group to another moiety.

As such, the combined teaching of the cited references fails to teach or suggest, and in fact teaches away from, the claimed methods which include a step of "converting said olefin functional groups to ligand reactive functional groups that produce covalent bonds with said at least two different polymer ligands upon contact with said ligands..." Accordingly, the rejection of Claims 7-26 and 44-51 under 35 U.S.C. § 103(a) as being obvious Wang in view of Bensimon may be withdrawn.

Claims 7-26 and 44-51 have been rejected under 35 U.S.C. § 103(a) as being obvious Pirrung in view of Bensimon, for the asserted reason that one of skill in the art would be motivated to modify the general array fabrication teaching of Pirrung to use the specific olefin group displaying surface of Bensimon and therefore arrive at the claimed invention.

However, a feature of the pending claims is the step of **"converting said olefin functional groups to ligand reactive functional groups that produce covalent bonds with said at least two different polymer ligands upon contact with said ligands..."** As such, the claimed methods include a step of converting the olefin functional groups to ligand reactive functional groups.

The combined teaching of Pirrung in view of Bensimon specifically teaches away from such a step.

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Specifically, at Col. 7, lines 22 to 32, Bensimon states that:

With an exposed group containing a $-\text{CH}=\text{CH}_2$ radical which will be called hereinafter "C=C surface" or "surface with ethylenic bond", a direct anchoring, in particular of DNA or proteins is possible. Within the framework of the present invention, it has been demonstrated that these surfaces have a reactivity which is highly pH-dependent. This characteristic makes it possible to anchor the nucleic acids or the proteins, especially by their end(s), using a determined pH region and often with a reaction rate which can be controlled by the pH.

Accordingly, Bensimon teaches a method in which the olefin functional groups on the surface are reacted directly with the ligands to be attached to the surface, without any intermediate conversion step. Furthermore, as this direct linkage ability without an intermediate conversion step is the benefit of using Bensimon's method of using olefin displaying functional groups, Bensimon provides no motivation to one of skill in the art to complicate the method by first changing the olefin group to another moiety.

As such, the combined teaching of the cited references fails to teach or suggest, and in fact teaches away from, the claimed methods which include a step of "converting said olefin functional groups to ligand reactive functional groups that produce covalent bonds with said at least two different polymer ligands upon contact with said ligands..." Accordingly, the rejection of Claims 7-26 and 44-51 under 35 U.S.C. § 103(a) as being obvious Pirrung in view of Bensimon may be withdrawn.

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CONCLUSION

The applicant respectfully submits that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Gordon Stewart at 650 485 2386. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078.

Respectfully submitted,

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